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Synopses

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Oral health and preventive dental care of school children

Referred for the management of dental caries under general anesthesia – a pilot study

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Introduction

An increasingly important area of pediatric dentistry is the dental care of children with dental caries referred for comprehensive treatment under general anesthesia[1]. A recent study by Hallett and O'Rourke (2002) on early childhood caries in school children in the Brisbane North region revealed that preventive dental care and knowledge of parents, as well as oral hygiene practices were important factors in controlling the progression of dental caries in 'at risk' children[2]. In addition, an unpublished study by Bourke (2001) on repeat general anesthesia for dental patients in the primary dentition referred to the Children's Oral Health Service showed a high prevalence and incidence of dental caries in these children[3]. These patients rendered supposedly caries free through dental treatment under general anesthesia may still be at high risk for future caries development. Moreover, studies (Almeida, 2000; Harrison, 2000; Hunter, 1998; Peretz, 2000; Primosch, 2001) have demonstrated that intensive follow-up dental health education and more frequent recalls may help to reduce the need for repeat treatment under general anesthesia[4-8].

The purpose of this pilot study was to investigate the oral health and preventive dental care of young school children referred to the Children's Oral Health Service, Royal Children's Hospital, for comprehensive dental treatment under general anesthesia. The impact of an intervention dental health education strategy including preventive oral hygiene practices and dietary advice on dental caries and oral hygiene status of these school children was determined. Demographic profiles of the study population were established. Information on prevalence and patterns of dental disease including dental caries status and oral hygiene status in the group was obtained. The preventive dental health practices and dietary sucrose intake of patients were investigated. Furthermore, this study sought to assess the impact of comprehensive restorative treatment under general anesthesia and follow-up dental health education on dental disease development in these children.

Patients and methods

Thirty-six patients (19 males, 17 females) referred to the Children's Oral Health Service for comprehensive treatment under general anesthesia by the School Dental Service, North Brisbane region were recruited for the study. An introductory letter and consent form were forwarded to parents one week prior to treatment under general anesthesia. A questionnaire was given to parents at the child's dental examination before treatment under general anesthesia to obtain details on

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THIS ISSUE

President's Report

IAPD Sydney 2005: An Outstanding Success!

I must congratulate Dr Richard Widmer, and his hard working team, along with Rebecca Deal and the people from Events Planners Australia, for the outstanding success of the 20th International Congress of the International Association of Paediatric Dentistry, "Frontiers of Paediatric Dentistry". At every level, this meeting has exceeded expectations: socially, culturally, and scientifically.

I am sure that all delegates will long remember the opening ceremony. Photo opportunities with a koala or a python, indigenous dancers from New Zealand and Australia, a rendition of Waltzing Matilda complete with newborn lambs and a stockman riding his horse through the auditorium, and finally three magnificent tenors emerging from the audience to close the show with a stunning serenade!

It was with some trepidation that ANZSPD initially considered offering to host an IAPD meeting. We did not have the government support that other nations enjoyed, so a resolution was passed to increase the Federal subscription to accumulate seed funding for this meeting. Although this decision was controversial at the time, it allowed us to move through the costly planning stages for the conference long before any revenue could be generated. Now that IAPD is over, the Federal Council recommended that the Federal subscription be reduced, and that resolution was endorsed by the AGM held in Sydney.

The Federal ANZSPD was further supported by loans from the individual Branches, and also the Australasian Academy of Paediatric Dentistry to support individual speakers and sessions. The success of the conference will ensure that these loans will be fully repaid once the conference accounts have been finalised and audited.

Of course, the conference would not have been possible without the generous support and sponsorship of the Dental Industry. The buzz of the trade display helped to create the friendly, relaxed, cosmopolitan atmosphere that characterised the meeting.

I would like to specifically acknowledge the support of our Silver Sponsor, Oral-B, and our generous long-term partner and **Gold Sponsor, Colgate**.

"At every level, this meeting has exceeded expectations: socially, culturally, and scientifically"

In the years leading up to the conference, there were many global events that had the potential to threaten the viability of the meeting by discouraging international travel, including armed conflicts, terrorist threats, SARS, H5N1 bird flu, and even tidal waves. Fortunately (and not just for our conference), it seems that people have responded with determination rather than fear. The sheer joy of this international meeting must surely give everyone hope for the future.

In order to support our regional neighbours, and through the mediation of Dr Philippa Sawyer, the ANZSPD agreed to sponsor two fourth year dental students from the University of Papua New Guinea. It was a pleasure to meet Priscilla Amof and Priscilla Agavi from UPNG who greatly enjoyed, and will undoubtedly benefit from their attendance. The Federal Council was pleased to be able to facilitate this sponsorship, and has requested that all Branches discuss future opportunities to support the development of paediatric dentistry in our region with their Federal Councillors, so that we can develop a consistent, coordinated approach and a transparent framework for future support applications.

For those of you who fell in love with ANZI, our conference logo and mascot, you will be pleased to know that the Federal ANZSPD will investigate protecting the little fellow under trademark law. While it is not the intention that ANZI would replace the current ANZSPD logo, we would like to ensure ANZI's availability for future ANZSPD meetings, publicity, and possibly even licensing.

Another development spurred on by the need to manage the financial risks of such a major undertaking, was the incorporation of the Australian and New Zealand Society of Paediatric Dentistry. Our constitution required some minor amendments in order to permit incorporation, and one of the legal requirements of incorporation is the need to hold an Annual General Meeting. This is an important matter, which will again require effective liaison between individual Branches and their Federal Councillors.

I would like to thank the outgoing Federal Vice-President, Dr Callum Durwood for his support, and welcome Dr Nina Vasan as the new Vice-President of ANZSPD, again representing the New Zealand Branch. I would also like to thank Dr Karen Kan for her tireless efforts and her patience in the production of this, our Federal Newsletter, Synopses. Karen's task is a difficult one, and as all previous editors will agree, the production of Synopses is only possible when our members are prepared to submit material. I would like to make this a general plea to all members to support your newsletter and submit material for publication. If you are unsure about the suitability of your material for Synopses, contact the editor via email (see our website www.anzspd.org.au for the link) to discuss. To the Branch Secretaries, I request that you keep the membership database up to date on the website, and keep to the publishing deadlines! Finally I would like to thank Dr Alistair Devlin, the ubiquitous and indefatigable Federal Secretary Manager for his support, and his ongoing drive to keep ANZSPD an effective advocate for Paediatric Dentistry.

I wish all members a happy and prosperous New Year. Hmmm. Now if only I could manage to finish with fireworks over the Harbour like we enjoyed at the IAPD Conference Dinner!

John Winters

Continued from page 1...

preventive dental health behavior. In addition, a routine 3-day diet history form was issued to each patient and parents were requested to fill in details of all food and drinks consumed during that period. Demographic data and relevant medical and dental information were also obtained.

Routine dental examinations were performed on all subjects who consented. Dental caries were charted using WHO criteria (WHO, 1987)[9]. The modified plaque index was used for assessing oral hygiene (Loe, 1967)[10]. The plaque score was obtained using a blunt-ended periodontal probe and was recorded '0' for absence of plaque and '1' for presence of plaque. Also, the gingival score was obtained on the subjects and was recorded '0' for absence and '1' for bleeding on gentle blunt probing (Silness and Loe, 1966). Moreover, where indicated, dental radiographs were taken to assist in dental caries diagnosis.

Salivary *mutans streptococci* levels in each subject's mouth were determined by the CRT® bacteria (Ivoclar Vivadent, Australia) by means of selective culture media[11]. The number of *streptococci mutans* colonies were expressed as follows: 0 = 0 CFU/mL saliva; 1 = $<10^5$ CFU/mL saliva; 2 = $</=10^5$ CFU/mL saliva.

Subjects were randomly placed into two groups, 3-month recall group and 6-month recall group. All participants were reviewed 2 weeks after dental treatment under general anesthesia and given oral hygiene instruction (toothbrushing and flossing technique with parental assistance if necessary), dietary advice (reduction in sugary snacks and drinks between meals), as well as topical fluoride application.

Both groups were recalled 6 months after treatment for an oral examination including plaque, gingival health scores, saliva sample for *mutans streptococci* counts, as well as determination of caries increment or whether further treatment was necessary. In addition, parents were asked to complete the same questionnaire and diet history form. Answers were compared with those obtained from the initial visit to determine any changes in preventive practices and dietary habits.

Subjects in the 3-month recall group were asked to return 3 months post-operatively for similar oral examination including plaque and gingival health scores and dietary analysis, as well as further preventive therapy and counseling.

Findings were analyzed to determine whether additional intervention of dental health education had an impact on influencing both children's and parents' preventive practices and compliance as well as improving the oral health of the children.

Descriptive statistical tests were used for data analysis. Ethical clearance for the study was approved by the Royal Children's Hospital and Health Service District Ethics Committee and the District Executive.

Results and discussion

Twenty out of the thirty-six patients (55.56%) recruited for the study did consent to the study (Table 1). The study group comprised 11 males and 9 females with a mean age of 7.39 years. Nine patients were randomly assigned to the 3-month recall group, while eleven patients were in the 6-month recall group.

Seventy-five percent of participants had an associated medical condition. This included cleft lip and/or palate, as well as other congenital or acquired medical disorders.

The attrition rate for the study over the 6-month period was quite high (50%), while the post-operative review compliance rate was 90% and 100% for the 3-month group and the 6-month group respectively (Table 2). At the 6 months recall, only one-third of the 3-month group patients were present for the visit. About two-thirds of the 6-month group patients were present at the final visit of the study. Owing to the high attrition rate and small study sample size of this study, no descriptive statistical test was performed to analyze the data.

TABLE 1: DEMOGRAPHY – PATIENT CHARACTERISTICS

	3 month group	6 month group	Total	%
RECRUITMENT				
Number of patients			36.00	
Mean Age (years)			7.35	
Males			19.00	
Females			17.00	
CONSENT				
Number of patients	9.00	11.00	20.00	55.56
Mean Age (years)	6.95	7.76	7.39	
Males	7.00	4.00	11.00	55.00
Females	2.00	7.00	9.00	45.00

TABLE 2: PATIENTS FOLLOW-UP COMPLIANCE

	3 month group	6 month group	Total
VISIT TYPE (n)			
Pre GA	9	11	20
POST GA*	7	11	18
Compliance %**	90%	100%	90%
3 months recall	7	not available	7
Compliance %	90%	not available	90%
6 months recall	3	7	10
Compliance %	33.33%	63.64%	50.00%

** Post GA visit was undertaken 2 weeks after dental treatment under general anesthesia*
*** All the compliance % were compared to the Pre-GA visit*

TABLE 3: PATIENTS SUGAR DIETARY EXPOSURE

Group	3 month group			6 month group	
	Pre-GA	at 3 mths	at 6 mths	Pre-GA	at 6 mths
n	9	7	3	11	7
Number & % of sugar exposure					
Solution					
At meals	25 37.31%	27 40.30%	3 20.00%	26 26.80%	12 19.35%
Between meals	10 14.93%	10 14.93%	3 20.00%	11 11.34%	5 8.06%
Retentive					
At meals	23 34.33%	11 16.42%	9 60.00%	29 29.90%	20 32.26%
Between meals	9 13.43%	19 28.36%	0 0%	31 31.96%	25 40.32%
Total sugar exposure	67	67	15	97	62
Mean per 3 days	7.44	9.57	5	8.82	8.86
Mean per daily	2.48	3.19	1.67	2.94	2.95

TABLE 4: PATIENTS DENTAL HISTORY

Group	3 month group		6 month group	
	Pre-GA	at 6 mths	Pre-GA	at 6 mths
n	9	3	11	7
Toothbrushing				
Frequency				
At least once daily	7 77.8%	3 100%	10 90.91%	7 100%
Partly				
Parents involved	6 66.67%	2 66.67%	7 63.63%	2 28.57%
Fluoride				
Toothpaste use	9 100%	3 100%	11 100%	7 100%
Supplements use	2 22.22%	1 33.33%	3 27.27%	2 28.57%
Benefit from use	4 44.44%	2 66.67%	10 90.91%	5 71.43%
Flossing				
Frequency				
Occassionally	2 22.22%	1 33.33%	2 18.18%	4 57.15%
Never	7 77.78%	2 66.67%	8 72.73%	3 42.86%
Parental assistance	1 11.11%	0 0%	2 18.18%	3 42.86%
Professional dental advice				
Yes*	7 77.78%	3 100%	10 90.91%	7 100%
Need for further information	2 22.22%	3 100%	5 45.45%	1 14.29%

**Includes oral hygiene instruction, diet advice, use of fluoride supplements and regular dental check-up*

Over the six-month period, there was a reduction in sugar dietary exposure in the 3-month group subjects, with the mean number of daily sugar exposures dropping from 2.48 to 1.67, whereas in the 6-month recall group, it remained around 3 sugar dietary exposures daily (Table 3). A majority of dietary sugar was consumed at meal times than between meals by the 3-month recall patients. On the other hand, the 6-month group patients revealed fairly similar sugar dietary exposure at meal times and between meals.

These results would appear to indicate that follow up at 3 months with diet advice to both parents and children might reduce the dietary sugar intake of the child patients, thus helping to reduce the risk of dental caries development.

The oral hygiene habits of both patient groups were compared in Table 4. All patients had their teeth brushed at least once daily at the conclusion of the study when compared with 80% of patients before treatment. About two-thirds of the parents from the 3-month recall group were involved in their child's toothbrushing practice; in contrast, only one-third of parents were involved in the 6-month recall group.

All patients were using fluoride toothpaste regularly before and after dental treatment under general anesthesia (Table 4). Only a minority of patients in both groups took fluoride supplement. Most parents from both groups believe fluoride is beneficial to dental health.

Over seventy percent of participants in both groups never had their teeth flossed either by self or parents before dental treatment under general anesthesia (Table 4). There was an increase in the number of patients flossing their teeth occasionally with or without parental assistance in both groups at the end of the 6-month study.

Seventy-eight percent and ninety percent of parents in the 3-month and 6-month groups respectively had been given professional advice on looking after their child's teeth, including oral hygiene instruction, diet advice, use of fluoride supplements and regular dental check-ups (Table 4). All parents of the 3-month group subjects were interested in getting more information on caring for their child's teeth, while only one out of seven in the 6-month group was interested.

There was more than fifty percent reduction in both mean plaque and gingival scores for both groups of patients at 2 weeks review after the dental treatment under general anesthesia (Table 5). Overall, the mean plaque and gingival scores were increased in both groups at further recall visits, although these were somewhat lower than the initial scores in both groups.

Nineteen out of twenty patients from both groups showed a positive *streptococcus mutans* count at the pre-treatment visit under general anesthesia (Table 5). One third of the subjects in the 3-month group and 15% of subjects in the 6-month group had a zero count of *streptococcus mutans* at the end of the study. Participants with positive *streptococcus mutans* counts in both groups at the beginning of the survey had a reduction in the counts after 6 months. The overall reduction of *streptococcus mutans* counts in both groups may be due to increase in preventive dental health practices (toothbrushing and flossing frequency) and resultant decrease in plaque, thus

minimising the potential caries risk for these children.

Table 6 shows the caries treatment experience of the participants in terms of dmft or DMFT scores in both primary and permanent dentition before dental treatment and at follow-up visits. The mean dmft score of the primary dentition in the 3-month recall group was slightly increased at the end of the study. By contrast, the mean dmft score of the 6-month recall group had reduced at 6 months. The decayed component had increased in the 6-month group patients when compared with patients in the 3-month group. There was a reduction in the filled component in both groups at the end of the study probably due to the exfoliation of primary teeth. The finding that 12 teeth were extracted in both groups as revealed in the missing teeth component was an indication of the severity of caries in the subjects. The mean DMFT score of the permanent dentition of the 3-month group decreased from 1.67 to 1.00; while, the 6-month group patients showed a slight rise in the DMFT score from 0.18 to 0.29 at 6 months interval.

Conclusion

Based on this pilot study, the reduction in dental caries experience in both groups of school children may be associated with improved oral hygiene status from follow up dental health education but may be less likely from changes in sugar dietary exposure over the 6 month period. Intensive follow up dental health education and more frequent recalls may help to reduce the risk for future dental disease development in school children in the short term, but may not greatly reduce the need for repeat treatment under general anesthesia for some at risk patients.

Owing to a fairly high attrition rate (50%) at follow up visits and small study sample size in this pilot study, the results should be treated with caution. A larger sample size would be required for a future study to determine whether additional intervention of dental health education has any long term impact on influencing both patients' and parents' preventive practices and compliance with frequent recalls, as well as improving the oral health of school children referred for the management of dental caries under general anesthesia.

TABLE 5: PLAQUE & GINGIVAL INDICES & S MUTANS COUNTS

Group	3 month group				6 month		
	Pre-GA	Post GA	at 3 mths	at 6 mths	Pre GA	Post GA	at 6 mths
n	9	7	7	3	11	11	7
Plaque Index							
Total Score	104	45	52	20	138	57	31
Mean Score	11.56	6.43	7.42	6.67	12.55	5.18	4.43
Gingival Index							
Total Score	43	15	13	10	70	24	21
Mean Score	4.78	2.14	1.86	3.33	6.36	2.18	3.00
S Mutans Counts (CFU)							
0	0 (0.00%)			1 (33.33%)	1 (9.09%)		1 (14.29%)
</=10^5	6 (66.67%)			1 (33.33%)	8 (72.73%)		6 (85.71%)
>10^5	3 (33.33%)			1 (33.33%)	2 (18.18%)		0 (0.00%)

TABLE 6: CARIES TREATMENT EXPERIENCE

Group	3 month group			6 month group	
	Pre-GA	at 3 mths	at 6 mths	Pre-GA	at 6 mths
n	9	7	3	11	7
Decayed Teeth					
Primary (dt)	37	1	0	26	2
Permanent (DT)	11	1	0	2	0
Missing Teeth					
Primary (mt)	1	8	8	0	5
Permanent (MT)	0	0	0	0	1
Filled Teeth					
Primary (ft)	14	26	11	23	17
Permanent (FT)	4	8	3	0	1
Mean dmft	5.78	5.00	6.33	4.45	3.43
Mean DMFT	1.67	1.29	1.00	0.18	0.29

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Book review

Reviewed by Dr John M Sheahan, ANZSPD Federal Councilor (Victoria)

Paediatric Dentistry Dental Care for Children – A Guide for Parents

Widmer R & Wright G, 2005

Richard Widmer is well known throughout New South Wales for his exceptional ability to promote paediatric dentistry and educate parents via the mass media. Now with Gerald Wright from London, Ontario, Canada, he has co-authored a 50 page user-friendly booklet for parents. Together the authors draw on more than 60 years of experience on two different continents. Their knowledge has been pooled and the booklet has been written in the friendly, conversational style that has become synonymous with Richard's other communications with parents. Delegates at the recent 20th Congress of the IAPD in Sydney were the first to see this little gem. Distributed through The Children's Hospital, Westmead, NSW, it is a remarkably inexpensive, educational tool. The publication is attractively presented, illustrated in full colour and will appeal to parents.

The oral health of children is important to parents. Naturally, parents have lots of questions about how to optimise their children's oral health. In the booklet's introduction the authors state,

"This booklet attempts to answer those questions through information given in four sections:

1. Let Me Ask You
2. Care for Special Kids
3. Product Information
4. A Little More

The first section, entitled 'Let Me Ask You', is written in a question and answer format. These are questions that parents and carers have most frequently asked the authors over the years. Questions such as: 'When should my child have his/her first dental visit?' 'When can children brush their own teeth?' 'Should my child be flossing?'

The answers that apply to one age group may not apply to another age group. For this reason, questions and answers are divided into four age groups:

- from birth to age two
- ages three to six (the primary tooth period)
- ages six to nine (when the adult teeth begin to arrive)
- ten years and up (when many or all the adult teeth should be in place).

Section two, 'Care for Special Kids', is directed to parents and caregivers of children with disabilities or medical conditions that affect the teeth or mouth. Because many of these children are under the care of multiple health care workers, oral health sometimes slips between the cracks. It is often not easy to maintain oral health and some of these children may require extra measures to accomplish the task. Oral care products that are helpful to use with these special kids are identified.

In section three, 'Product Information', various preventative products, treatments and recommendations are discussed. Parents and caregivers can be baffled by the array of oral care products on store shelves. They ask: 'What is the best toothbrush?' 'What toothpaste do you recommend?' At your child's dental visit, your dental professional may recommend pit and fissure sealants for your child. 'What are pit and fissure sealants?' 'Are they any good?' 'Does my child really need them?' Good questions! Section three answers such questions by providing the authors' assessments of numerous preventive methods based upon scientific information and their clinical experiences. Hopefully, the information will guide parental and caregiver decision making.

The fourth section, 'A Little More', reviews important points about tooth decay. It works on the premise that the more we know about tooth decay, the better we are able to fight it."

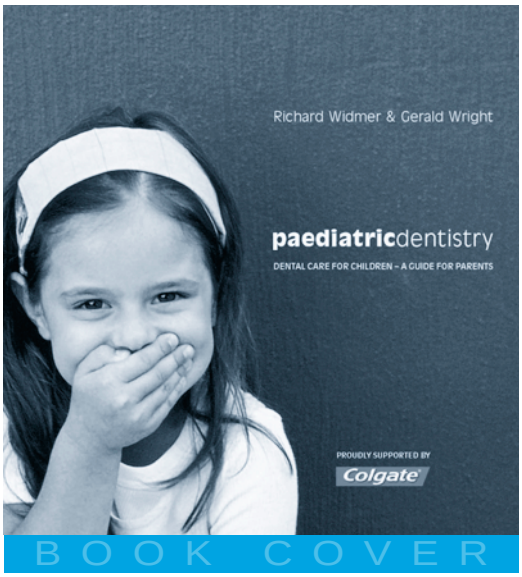
While the material is neither IAPD-endorsed nor does it reflect IAPD policies, the IAPD website, www.iapdworld.org, has published the text of section 1, 'Let Me Ask You' in its information for parents. Without the attractive layout and illustrations of the booklet, the text alone loses its impact but it does give one an opportunity to wet one's appetite for more.

Flaws with this publication are hard to find and mostly trivial. The one significant disappointment, especially for an Australasian readership, is the omission of any mention of preventive products containing CPP-ACP, which in recent years have become an integral part of our armamentarium.

As previously stated, the booklet is remarkably inexpensive, no doubt in part due to the generous sponsorship of our friends at Colgate Australia. Single copies cost $5.50 including GST plus $3.30 postage to Australian destinations. Purchase 25 copies and the unit cost reduces to $3.50 including GST plus $6.60 postage. Order 100 copies and you'll pay only $2.50 per copy plus $8.80 postage. This is a bargain, especially when one considers that a similar publication, "Your Children's Teeth", written by the Australian Society of Dentistry for Children (Victoria) and published in 1983 retailed for $7.50 twenty years ago!

Paediatric dentistry Dental Care for Children – A Guide for Parents can be purchased by contacting:

Kids Health Department
The Children's Hospital
Locked Bag 4001
Westmead NSW 2145
Australia
Phone: (612) 9845 3585
Fax: (612) 9845 3562
Email: kidshealth@chw.edu.au



BOOK COVER

PNG Students attend IAPD 2005

Priscilla Agavi and Priscilla Amof enjoying their trip to Sydney

Through the generosity of ANZSPD it was possible for two fourth year dental students from UPNG to attend the IAPD conference in Sydney in November 2006. The two students thoroughly enjoyed their visit to Sydney spending three days at the conference, a day at Westmead Center for Oral Health and Children's Hospital Westmead, a day at Sydney Dental Hospital, two days in private practice and several days enjoying the sights of Sydney. Once home again the two students wrote a letter of thanks to the ANZSPD.

Words of gratitude

Priscilla Agavi
4th year Bachelor in Dental Surgery student,
University of Papua New Guinea

My name is Priscilla AGAVI. On behalf of my colleague, Ms Priscilla AMOF, I would like to take this opportunity and time to first of all thank all our sponsors, Dr.Philippa Sawyer, specialist paediatric dentist, Sydney, and the Australian and New Zealand Society of Paediatric Dentistry, particularly the current president, Dr John Winters, who had made it possible for the two of us to attend the International Association of Paediatric Dentistry Conference in Sydney from the 1-5 November 2005.

It was indeed a great privilege and we are both so happy and grateful for your full support.

We have learnt many things from that great conference and we ought to pass this same knowledge that we have received to our fellow colleagues so that we try to work together in promoting paediatric dentistry in our country as future dentists. At the moment there is not one single specialist in the country, including a paediatric dentist. However, there are a couple of students who are intending to become paediatric dentists in the future and this is a promising sign.

The people of Papua New Guinea still cling to the primitive mentality that dentistry is just about pulling teeth. To them, there is no clear distinction between a dental therapist, a dentist or an oral surgeon. All dental workers, to them are addressed as dentists or doctors. This is a big problem facing the dental profession in the country at the moment.

And as fourth year students we are already worried about that. We want to change the people's mentality. I am 100 percent sure that all our other colleagues would say the same thing. We want to change the misunderstanding that the people of Papua New Guinea have about our profession though we know it will take a long time and requires a lot of effort from us.

Now with paediatric dentistry, we want to tell the people that there is a speciality area such as this, which concerns the care of children and their teeth. One other thing that we ought to see come to reality is to see cooperation between the medical and dental professionals. We want to establish a close working link between them, in this case, the paediatricians and ourselves for the holistic treatment and benefit of our young patients.

However, the future is unknown, uncertain and unpredictable. But we will both put in our best to make sure what we have learnt from this conference is not of waste.

To conclude, I want to once again personally thank Dr Philippa Sawyer and her family, Mr Greg Sawyer and children for the kind hospitality esp. for meals and accommodation and above all her time in making sure that we were both safe and happy during our stay. We very much enjoyed every bit of our stay there.

I also want to thank the Australian and New Zealand Society of Paediatric Dentistry, particularly Dr. John Winters for the support, staff of the Sydney Dental Hospital, Prof Widmer and the staff of Westmead Children's Hospital for their kind welcome, Dr Susan Brent and staff, and not forgetting Mr Andrew Sproll, practice manager at Dr Sawyer's and many others including our very own staff of Papua New Guinea Dental school, our families, relatives and friends who in one way or the other made this trip possible.

iapd congress 2005

The 20th IAPD congress in Sydney November, 2005 was spectacularly successful. The organisers reported very positive feedback from a wide variety of attendees. There were over 1,000 delegates from 62 countries. The highlights of the program were the hypothetical on the opening morning which followed the excellent lectures from Professor Wendy Mouradian and our Professor A J Spencer. The pre-congress courses were very well received, particularly the first ever meeting solely for post-graduate students where over 70 people attended. The social program was sensational.The harbour cruises, opera and the Manly-Spit walk were all very popular but they paled into the background once the Gala dinner got underway with opera singers, magicians, ice-carvers and finally fire-works. What a week! The ANZSPD showed the rest of the world we could put on a show that was not only a lot of fun, but made the highest grade in scientific endeavour. The organising committee, Angus Cameron,Ed Alcaino,Peter Wong,Bernadette Drummond,Sally Hibbert, Soni Stephen, Kareen Mekertichian, Erin Mahoney and Jamie Lucas did a wonderful job. Hong Kong calls in 2007.

Richard Widmer, Chairman, IAPD Congress 2005 Organising Committee

iapd congress 2005

Pulpal biology in primary and young permanent teeth

Dr Susan Barry (BDSc)

Postgraduate student in Doctor of Clinical Dentistry in Paediatric Dentistry at The University of Melbourne

Introduction

Recent advances have increased understanding of pulpal biology. This paper addresses new developments and how these may benefit future pulpal therapies, and provides a greater understanding of the mechanisms of pulpal repair.

Primary dentinogenesis

During embryonic development, primary odontoblasts differentiate from mesenchymal cells of the dental papilla.[1,2] Initiation of primary dentinogenesis occurs in a defined temporo-spatial pattern controlled partly by inductive signals immobilized on the basement membrane (BM).[1,2] Odontoblasts form the tooth by secreting primary dentine around pulpal connective tissues. Primary dentinogenesis ceases when tooth formation is complete. Secondary dentinogenesis then occurs slowly throughout the life of the tooth, gradually decreasing the pulp chamber size.[2-5] Removal of growth factors or signals for matrix secretion, or negative inhibitory signals acting on odontoblasts, slow dentine formation.[2]

Although all mesenchymal cells in the dental papilla of the developing tooth have the potential to become odontoblasts, only cells directly contacting the inner dental epithelium (IDE) differentiate into odontoblasts.[1,2] The BM provides scaffolding for odontoblasts during primary dentinogenesis, with components such as fibronectin, tenascin and growth factors promoting odontoblast polarisation and terminal differentiation.[6]

Many growth factors play a role in the control of odontogenesis. Table 1 outlines the identified actions of individual growth factors in the process of dentinogenesis and the roles these bioactive molecules play individually or in combination in the processes of odontoblast differentiation or dentine production. Some growth factors have been shown to be involved in dentinogenesis at several stages, while other growth factors have been identified to play only one or two, still significant, roles in this process. As research continues, more bioactive molecules may be identified, or the actions of each growth factor further understood.

Members of the Transforming Growth Factor Beta family, in particular TGF-ß1, regulate extracellular matrix secretion by odontoblasts in primary dentinogenesis.[6] The factors TGF-ß1, TGF-ß2, TGF-ß3, and Bone Morphogenic Proteins 2, 4 and 7 (BMP-2, BMP-4 and BMP-7) have been detected in the IDE against pre-odontoblasts, polarizing and functional odontoblasts.[1]

Pulpal response to injury

The pulp responds to many stimuli by depositing tertiary dentine, increasing the distance between the pulp and the injury.[3,4] Caries progression leads to mineralization within (intratubular) and between (peritubular) dentine tubules; this may obliterate the tubules (sclerotic dentine). This defense mechanism reduces dentine permeability to bacterial antigens and agents which affect the pulpal tissues prior to the carious lesion reaching the pulp.[7,8] Quality and quantity of tertiary dentine production are dependent on the depth and rate of caries progression. Tubules are often irregular and dentine less mineralized with a higher organic content.[9] Tertiary dentine may not form when caries progression is extremely rapid due to death of odontoblasts without time for recruitment of alternative cells.[10]

Inflammation is stimulated by toxins diffusing into the pulp when removal by the pulpal circulation does not keep the toxin level below an inflammatory threshold.[3] Cytokines accompany the chronic inflammatory response to slowly progressing caries and influence the pulpal response and tertiary dentine production.[2] With severe stimuli and rapid carious advancement, the pulp undergoes increased inflammation near the affected dentine. An untreated carious lesion leads to pulp exposure involving microorganisms and inflammation. A small abscess may develop and as the exposure progresses, partial or total pulpal necrosis may occur, and tertiary dentine formation ceases.[8]

In traumatic exposures, there is limited exposure of pulp tissue to oral microbiota, which is favourable for pulpal healing that is influenced by infection levels.[11] Traumatic injuries to primary and permanent teeth may eventually result in partial or total pulpal obliteration or necrosis. Maintenance of blood supply influences the pulpal outcome, as odontoblasts are highly sensitive to impaired blood circulation.[12]

Pulp capping and pulpotomy procedures can be successful; healing is influenced by the pulpal condition at the time of amputation, by adequate removal of pulpal irritants and by the quality of the marginal seal. Formation of a dentinal bridge is important and healing is best when the bridge completely walls off the affected area.[13]

To respond to stimulation and injury, odontoblasts must maintain their polarized, elongated form. In laboratory studies, polarization depended on maintenance of contact between odontoblasts and the dentine matrix, suggesting factors within the matrix may control odontoblast polarization and function.[2]

In primary teeth, inflammation may promote early odontoclastic resorption of the pulpal surface of coronal dentine.[8] Monocyte-like cells are transported to the pulp via blood vessels and differentiate into odontoclasts. With dentine resorption, pulp tissue may react by differentiating other progenitor ectomesenchymal cells migrating from the periodontal tissues into the pulp chamber, and depositing a cementum-like substance.[8]

Reactionary dentinogenesis

Reactionary dentinogenesis is the secretion of tertiary dentine by primary odontoblasts in response to mild stimuli.[2] Dentine production occurs

beneath the site of injury, generally limited to involved dentinal tubules, reducing permeability.[3,4] Molecular signals controlling odontoblast secretory behaviour in primary dentinogenesis may be involved similarly or reactivated during reactionary dentinogenesis.[2] Reactionary dentine is not secreted uniformly; as primary odontoblasts secrete the matrix, the dentine may be structurally tubular in continuity with primary dentine.[3,14]

Following cavity preparation in young permanent teeth, a correlation exists between residual dentine thickness and the quantity of reactionary dentine secreted.[15] If remaining dentine is less than 0.25mm, production slows, probably due to death of approximately 50% of odontoblasts. In shallower cavity preparations, 85% or more odontoblasts may survive.[4] A residual dentine thickness of more than 0.5mm is necessary to avoid pulp injury in young permanent teeth.[15]

During dentinogenesis, odontoblasts secrete TGF-ß molecules into the matrix, creating stores which can later be released on dentine dissolution.[14] These molecules are believed to signal reactionary dentinogenesis.[4] In cultured dental pulps, TGF-ß3 stimulates functional odontoblasts while TGF-ß1 and BMP-7 up-regulate dentinogenesis.[2] With dentinal dissolution, these growth factor signaling molecules are released, diffuse through dentinal tubules, stimulate odontoblasts, and stimulate reactionary dentine formation.[3,4]

Dentine demineralization occurs through bacterial acids or application of cavity conditioners or etching agents.[2] A laboratory study has shown rinsing a cavity for 60 seconds with ethylenediaminetetraacetic acid (EDTA) was optimal for stimulating an underlying reactionary dentinogenesis.[3] Calcium hydroxide releases TGF-ß1 from dentine.[3,4] Odontoblast secretion of TGF-ß1 may increase when a carious lesion is advancing, providing another source of this growth factor.[3]

Signals for reactionary dentinogenesis also come from within the pulp with Nerve Growth Factor (NGF) synthesized at an increased rate in pulp cells in the subodontoblastic layer beneath injured odontoblasts.[14] Odontoblasts show receptors for NGF and NGF plays a role in the elongation of odontoblastic processes during reactionary dentinogenesis.[14]

Reparative dentine

With more severe injury, primary odontoblasts may die and new dentine formation is termed 'reparative dentine'.[3] This dentine forms after pulp exposure following loss of primary odontoblasts. Reparative dentine may also form following reactionary dentine as the injury increases.[4] Reparative dentine in both primary and permanent teeth is usually irregular with many morphological variations.[8]

Through mechanisms of receptor binding, bioactive molecules signal transduction and gene activation or suppression, induce proliferation of replacement cells and promote secretion of extracellular matrix which forms reparative dentine.[16] There are three steps for reparative dentinogenesis: progenitor cell recruitment, signaling of odontoblast-like cell differentiation, and up-regulation of matrix secretion.

Progenitor cell recruitment

Cells responsible for reparative dentine are odontoblast-like, differentiating from progenitor pulp cells that migrate to the injury site. Fibroblasts, undifferentiated mesenchymal cells, dendritic cells and ectomesenchymal perivascular cells have been implicated as sources for progenitor cells.[4,8,17,18] The variable structure of tertiary dentine may reflect the different cell types induced to produce the matrix.[8] In the pulps of young patients, progenitor cells are readily available for differentiation.[9]

Notch signaling genetic control may determine progenitor cell recruitment during reparative dentinogenesis.[4] TGF-ß1 may regulate expression of notch receptors after tooth injury, providing a migratory stimulus for subodontoblastic progenitor cells.[4,14] Inflammatory cells at the injury site may be involved in chemotaxis of pulpal progenitor cells. Odontoblasts produce proinflammatory mediators, chemotactic cytokines, which may trigger dendritic cell accumulation at the pulp-dentine interface.[17] Cytokines induce cell division, replacing lost cells after pulpal exposure.

During dentinal destruction, immature dendritic cells accumulate close to lesions to 'sample' foreign antigens.[17] TGF-ß1 derived from odontoblasts or damaged dentine can permeate from the dentine-pulp interface into the pulp, contributing to the accumulation of immature dendritic cells and stimulating reparative dentine production.[17] Pulp dendritic cells have receptors for TGF-ß1 binding and signal transduction and are attracted to the odontoblastic layer by dentinal TGF-ß1 (Table 1).[17]

Signaling of cell differentiation

Molecular signals for odontoblast differentiation in primary dentinogenesis are involved in stimulation of odontoblast-like cell differentiation.[1] TGF-ß type I and II receptors are present on dental pulp cells and TGF-ß3 causes functional differentiation of odontoblast-like cells.[2,3] Insulin-like Growth Factor-1 (IGF-1) delivered systemically has also been linked to differentiating odontoblasts.[3] Platelet-derived growth factor (PDGF) also stimulates the differentiation of odontoblastic cells.[19]

Heparin sulphate is present in the BM during primary odontoblast differentiation.[20] Growth factors shown to induce differentiation of odontoblast-like cells when combined with heparin are TGF-ß1, TGF-ß3, BMP-2, BMP-4, BMP-7, and IGF-1.[1,3,20] Fibroblast growth factors (FGFs) bind heparin and promote growth and differentiation of mesenchymal cells. *In vitro*, FGF-1 induces terminal differentiation of pre-odontoblasts in conjunction with TGF-ß1, while FGF-2 regulates the effect of TGF-ß1 in promoting cell polarisation.[21]

The BM may serve as a substrate or reservoir for bioactive molecules.[1,3,20] The BM may be absent in the event of tissue injury and another substrate such as fibrodentine may promote odontoblast differentiation. Secretion of fibrodentine matrix may precede reparative dentinogenesis, possibly allowing accumulation of signaling molecules.[3,22] Tubular dentine matrix formation by polarized cells has been seen on fibrodentine.[4] Fibronectin may participate in differentiation and organisation of odontoblast-like cells in reparative dentine formation after pulp capping with $Ca(OH)_2$.[6] Therefore, fibrodentine may take on the role of the BM in its absence.[6]

Neurogenic factors may participate in regulation of odontoblast-like cell differentiation and organisation. Laboratory studies have shown formation of new nerve fibres preceding reparative dentine formation.[6] A close

relationship exists between nerve fibres and odontoblast-like cells involved in dentinal bridge formation.[13] Proto-oncogenes expressed by differentiating odontoblasts include *c-Jun*, *c-Fos* and *Raf-1*. Members of the TGF-ß superfamily regulate transcription of these nuclear proto-oncogenes, indicating a further role in odontoblast-like cell differentiation.[1]

Control of dentine secretion

Control of dentine secretion may occur due to different molecular signals from those that induce odontoblast differentiation. Transcription factors up-regulate the genes encoding for dentine extracellular matrix proteins.[16] TGF-ßs increase dentine secretion by odontoblasts and TGF-ß1 increases production of collagen and alkaline phosphatase.[3,14] Laboratory studies have shown TGF-ß1 stimulates type I collagen synthesis at a transcriptional level and TGF-ßs in combination with heparin or fibronectin stimulate matrix secretion after polarization of pre-odontoblasts.[14,20] Heparin combined with TGF-ß3 induces secretion of a predentine-like matrix.[1] In maturing dentine TGF-ß2 stimulates odontoblast differentiation, increasing the rate of dentinal mineralisation.[23]

Factors TGF-ß1 and TGF-ß3 stimulate odontoblast secretory activity, with TGF-ß3 possibly having a greater intensity in its effects on odontoblasts. A 29% increase in thickness of predentine occurred *in vitro* after application of TGF-ß1 to odontoblasts.[24] Cell numbers in the subodontoblast layer increased in the presence of TGF-ß1 or TGF-ß3.24 TGF-ß3 led to a 59.9% increase in extracellular matrix formation. TGF-ß3 induced some odontoblast differentiation in the dental papilla.[24]

If the mechanical support of the BM is lacking for odontoblast-like cells, preodontoblasts deposit an extracellular matrix without polarisation.[1] The necrotic layer may mimic the actions of the BM in an injured pulp.[6] A necrotic surface underneath some biomaterials or pulp capping agents promotes pre-odontoblasts to polarise and deposit matrix.[1] In the presence of bioactive TGF-ß molecules tubular dentine is deposited.[1]

Control of secretory activity is important in reparative dentine formation. Pulpal obliteration by too much dentine formation is undesirable. In primary dentinogenesis the amount of matrix secreted seems to be predetermined and controlled by the IDE.[2] Understanding this regulation will be important for development of pulp capping agents based on growth factors.

Growth factors and pulp capping

Calcium hydroxide pulp capping agents stimulate dentinal bridge formation by promoting release of endogenous growth factors and dentinogenic tissue repair.[4] A limited zone of necrotic tissue forms when $Ca(OH)_2$ contacts the pulp but this tissue does not produce significant changes in subjacent pulpal tissue.[13]

Growth factors including BMP Human Osteogenic Protein-1 (hOP-1) (also known as BMP-7), BMP-2, TGF-ß1, Human Insulin-like Growth Factor 1 (rhIGF-1) and a further bioactive molecule, bone sialoprotein, have been used successfully to induce dentine bridging as pulp capping agents in several animal models.[16,25-29] Typically a collagen membrane was used as a carrier for the growth factors in these pulp capping agents.[16] Dentine bridges consistently formed after a few weeks, often consisting of tubular dentine.[16] In these studies, the thickness of dentine produced was greater than in control teeth treated with $Ca(OH)_2$. The quantity of reparative dentine was proportional to the volume of growth factor placed and replaced the mass of the pulp capping substrate without penetrating the pulpal tissue.[25,26,30] In the $Ca(OH)_2$ treated teeth, reparative dentine formed partial dentinal bridges under the material replacing pulpal tissue. Maintaining pulp vitality with these pulp capping agents is not always as successful.[30] Emdogain®, a commercial formulation of enamel matrix derivative, was also studied as a pulp capping agent in miniature swine, and found to result in dentine-like bridge formation over exposures after 4 weeks in greater quantities than in controls treated with $Ca(OH)_2$, suggesting enamel matrix derivatives can induce reparative dentine formation.[31]

When considering use of growth factors to stimulate dentine formation as exogenous signaling molecules in pulp therapy medicaments, several clinical issues need to be addressed. These include: substrate selection, application dose, control of dentinal response to avoid excessive dentine, and possible immune reactions.[3,22] Growth factors already stored within the dentinal matrix may provide a source for activation of dentinogenesis.[22] Research should be directed towards promoting their release from the dentinal matrix, such as by topical application of suitable stimulants, resulting in dentine production.

Conclusion

Many growth factors appear to be involved in both primary dentinogenesis and production of reactionary or reparative dentine. Synergistic effects of growth factors need further investigation. Greater understanding of these signaling molecules and the roles they play individually play in odontoblast differentiation or dentine production will help influence development of treatment strategies to encourage desirable pulpal healing responses.

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Growth factors	Actions in dentinogenesis
TGF-ß1	▪ Regulates secretion of extracellular matrix by odontoblasts in primary dentinogenesis ▪ Up-regulates dentinogenesis by odontoblasts for reactionary dentine formation ▪ May have a role in regulating notch receptors after tooth injury ▪ Could provide a migratory stimulus for pulpal progenitor cells ▪ Increases the number of cells in the subodontoblastic layer ▪ With heparin induces odontoblast differentiation ▪ Increases the thickness of predentine ▪ Increases production of alkaline phosphatase ▪ Stimulates collagen type I synthesis
TGF-ß2	▪ Suggested to increase mineral apposition rate in maturing dentine ▪ Suggested to stimulate odontoblast differentiation
TGF-ß3	▪ Stimulates functional odontoblasts ▪ Causes functional differentiation of odontoblast-like cells ▪ With heparin induces cellular differentiation of odontoblast-like cells and secretion of a predentine like matrix ▪ Increases the number of subodontoblastic cells ▪ Increases extracellular matrix formation
BMP-7 (hOP-1)	▪ Up-regulates dentinogenesis by odontoblasts ▪ Combined with heparin causes functional differentiation of odontoblast like cells
BMP-2	▪ Combined with heparin causes functional differentiation of odontoblast-like cells
BMP-4	▪ Combined with heparin causes functional differentiation of odontoblast-like cells
NGF	▪ Elongates odontoblastic processes during reactionary dentinogenesis
IGF-1	▪ Linked to differentiating odontoblasts ▪ Combined with heparin induces differentiation of odontoblast-like cells
PDGF	▪ Stimulates differentiation of odontoblast cells
FGF-1	▪ Induces terminal differentiation of pre-odontoblasts when acting with TGF-ß1
FGF-2	▪ Could regulate the effect of TGF-ß1 to promote cell polarization

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ANZSPD Federal Secretary-Manager's report

The Federal Council of A.N.Z.S.P.D. met at the time of the I.A.P.D. Congress in Sydney, and the Annual General Meeting of the Society was also conducted. A number of things were discussed and resolved.

1. The overwhelming success of the I.A.P.D. Congress was noted and the Council congratulated the Local Organising Committee for its endeavours. The very successful use of the motif, 'ANZI' as part of the promotion of the Congress was recognized, and as a result, it was decided to proceed to obtain the copyright and to apply for registration of 'ANZI' as a trademark belonging to A.N.Z.S.P.D.
2. Nina Vasan was elected as Vice President of the Federal Society. Nina had replaced Callum Durward as the New Zealand Councillor, and now she also replaces him as the Vice President.
3. Government funding for treatment of Amelogenesis Imperfecta, Dentinogenesis Imperfecta and Ectodermal Dysplasia. It was discovered that both Australia and New Zealand have a similar problem, in that the funding of treatment for patients with these conditions is very haphazard. It was decided that a joint approach by A.N.Z.S.P.D. and the Australasian Academy of Paediatric Dentistry to both the Australian and New Zealand Governments should be developed. This would probably also involve input from the specialist paediatric dentistry hospital and government departments.
4. The Federal Council has appointed a sub-committee to investigate whether certain bottled drinks can cause dental erosion, whether manufacturers of these drinks should be required to provide a warning of this possible risk, and whether the manufacturers of these drinks might be persuaded to incorporate demineralising agents in these products. David Manton has agreed to be Convenor of the sub-committee; the other members are Nina Vasan, Lochana Ramalingam and Mala Desai.
5. The Society finds itself in a very favourable financial position. As a result, the Council decided to submit to the members at the Annual General Meeting the proposal that the Federal subscription be reduced from AU$40.00 a member to AU$35.00. The membership agreed! Those branches offering individual I.A.P.D. memberships are advised that this will cost AU$100.00 again in 2006.

   The Council also decided the branches should be asked to submit ideas and suggestions on suitable and accountable ways in which these funds can be used. All branches are urged to submit proposals on any such ideas.
6. Essay Competitions for 2006. The Post-graduate Essay topic for this year is: "Discuss the dental implications of oro-facial clefting".

   The Undergraduate Essay topic is: "Discuss the acute management of dental trauma in children, and its relationship to long term prognosis".

   Entries in both competitions close on Friday, 6th October 2006. All schools of dentistry in Australia and New Zealand will be receiving notices of these competitions.
7. The Federal A.N.Z.S.P.D. had applied to the Dental Practice Board of Victoria to become an Approved Educational Provider [AEP]. The Board has advised that the application by A.N.Z.S.P.D. has been approved.

Alistair Devlin

ANZSPD – Branch news 2005

Western Australia

The W.A. Branch will be holding its Annual General Meeting on Friday, 10th February 2006 at A.D.A. House in West Perth. This will be, in fact, a delayed 2005 AGM – the Branch Constitution specifies the AGM should be held in November, but because of the absence of many members at the I.A.P.D. Congress in November and the general busy time that accompanies the end of the year, it was impossible to find a universally suitable date in November.

The usual AGM business will occur, with the receiving of reports and election of office bearers. The finishing touches will be put on the programme for the year. It will definitely include a Mid-Winter meeting, with the prospect of bringing one or two interstate speakers as happened with the visit of Sam Gue and Sally Hibbert in 2004.

In addition to the Annual General Meeting, a round table discussion will be conducted to discuss the highlights of the scientific programme at the I.A.P.D. Congress held in Sydney in November 2005. This may well influence decisions on the choice of speakers for the next A.N.Z.S.P.D. Convention in Broome in May 2007.

Alistair Devlin

New South Wales

On behalf of the members of the NSW Branch the committee would like to thank all those involved in the organisation of the IAPD Congress in Sydney, it was a huge success from an attendee's perspective and an event of which we can all be exceedingly proud.

The NSW Branch AGM was held in September 2005 and all committee members have decided to remain in office for a second year.

President: Sally Hibbert

Secretary: Philippa Sawyer

Treasurer: Anthony Burges

Committee Members: Eduardo Alcaino, Ronny Marks, Kareen Mekertichian (Federal representative), Katherine Ngu, Juliette Scott and Soni Stephen.

The first meeting for 2006 held on 7 February was titled 'MYTHBUSTERS' and consisted of four speakers each with the task of de-bunking a popular myth.

1. PULP THERAPY IN PRIMARY TEETH
   Juliette Scott
2. ANTIBIOTIC THERAPY
   Philippa Sawyer
3. FRENECTOMIES
   Angus Cameron
4. OVERJET AND TRAUMA RISK
   Ronny Marks

Subsequent meetings:

9 May; TRAUMA UPDATE, Sally Hibbert with support from Fiona Bell

1 August; EROSION, Erin Mahoney, Lindy Sank and Susie Burrell

7 November; AGM and 'Paediatric Pearls of Wisdom', four speakers and topics TBA.

The 2006 RK Hall visiting lecturer series featuring Katie Ayers, Richard Widmer and John Winters will include a day in Hobart on 4th March 2006. NSW branch members have been encouraged to attend the day in Hobart with the opportunity to take in some of the sights of Hobart and surrounds on the Sunday following the seminar.

Philippa Sawyer

Victoria

Throughout 2005 the ANZSPD committee has worked hard on behalf of its membership to complete amendments to the constitution. This was made necessary as our original constitution did not comply with the Associated Incorporations Act and also made us ineligible for income tax exemption. Particular thanks should go to Dr Karen Kan, Dr John Sheahan and Dr Jodie Heap for all their hard work in drafting and redrafting this document which was ratified at a special meeting in May.

The annual Elsdon Storey Memorial Lecture was held on Thursday 6th October. The memorial lecture was attended by members of the Storey family as well as society members at University House. This year Dr Werner Bischof, a Periodontist in private practice and consultant at the Alfred Hospital Melbourne, gave the memorial lecture reflecting on his experiences with children in his practice. He sees very few children as patients so he reflected on those he had seen as an undergraduate 15 years ago and where they would be today. He speculated whether we could predict from those early encounters and treatments those that might become the high risk or chronic patients he sees today.

Prior to Dr Bischof speaking Dr Susan Barry (Postgraduate Paediatric dentistry student) gave an enlightening case presentation on Dentinogenesis Imperfecta.

Our final function for the year was an enjoyable Christmas dinner at Kooyong Lawn Tennis Club on Friday 3rd December. Nicky Kilpatrick in her inaugural duty as incoming President made presentations and votes of appreciation to Dr Mala Desai immediate past president and to Dr Karen Kan who was stepping down as treasurer after 8 years.

We look forward to a full programme in 2006 which promises to be a varied year. Our regular dinner meetings will start in February and include presentations on both pharmacological and non-pharmacological approaches to behaviour management. In November we are planning a weekend in regional Victoria. We will combine this meeting with the Southern ADA group in Geelong and focus on the prevention and management of carious and hypomineralised teeth in young people. Speakers will include Dr John Winters, the current Federal ANZSPD president and a variety of local presenters. This weekend promises to be both professionally and socially exciting. We hope that as many members as possible will attend.

Nicky Kilpatrick and Felicity Wardlaw

New Zealand

In New Zealand school holidays have changed such that school finished well before Christmas and extends until 7 February. Bliss for some and for many a state of confusion as the prolonged holidays leaves our domestic lives in an extended state of chaos.

And then we find that our director general of health Dr Karen Poutasi (who oversaw much of the significant health changes in New Zealand) has now resigned to become the director general of education – which has left many of us bewildered.

Mary Anne Costelloe

IN BRIEF

. . . . and the award goes to

The *News* recently announced Katie Ayers as the winner of the inaugural NZDA Outstanding Young Dentist of the Year, in recognition of her significant achievements in research and teaching, and extensive contributions to the profession via many NZDA activities.

She will receive her award during this year's NZDA Centennial Conference in Napier (15-17 September), which includes this impressive carving by Delanie Brown of The Wairakei Terraces (pictured).

The carving was commissioned to reflect the values, role and history of the NZDA and to incorporate the principles of the young dentist award. It was carved from a single piece of 2000-year-old totara log.

Known as 'Te Prow of the New Zealand Dental Association', the carving shows that the tau ihu (prow) is what leads the way when a tribe voyages upon a waka. It is a physical manifestation of beliefs and values. The waka that this prow belongs to is the NZDA. Its journey and success comes from the work that each paddler or employee does. The patterns adorning this prow depict the wairua (spirit) of each person on board. Within the patterns are symbols that depict strength, leadership, vision and unity. It is these qualities that all aboard the waka must embrace in their journey as they strive for perfection and excellence.

winning achievements

NZDA Outstanding Young Dentist of the Year winner Katie Ayers, graduated BDS (1995) and MDS (1999) and already her achievements include:

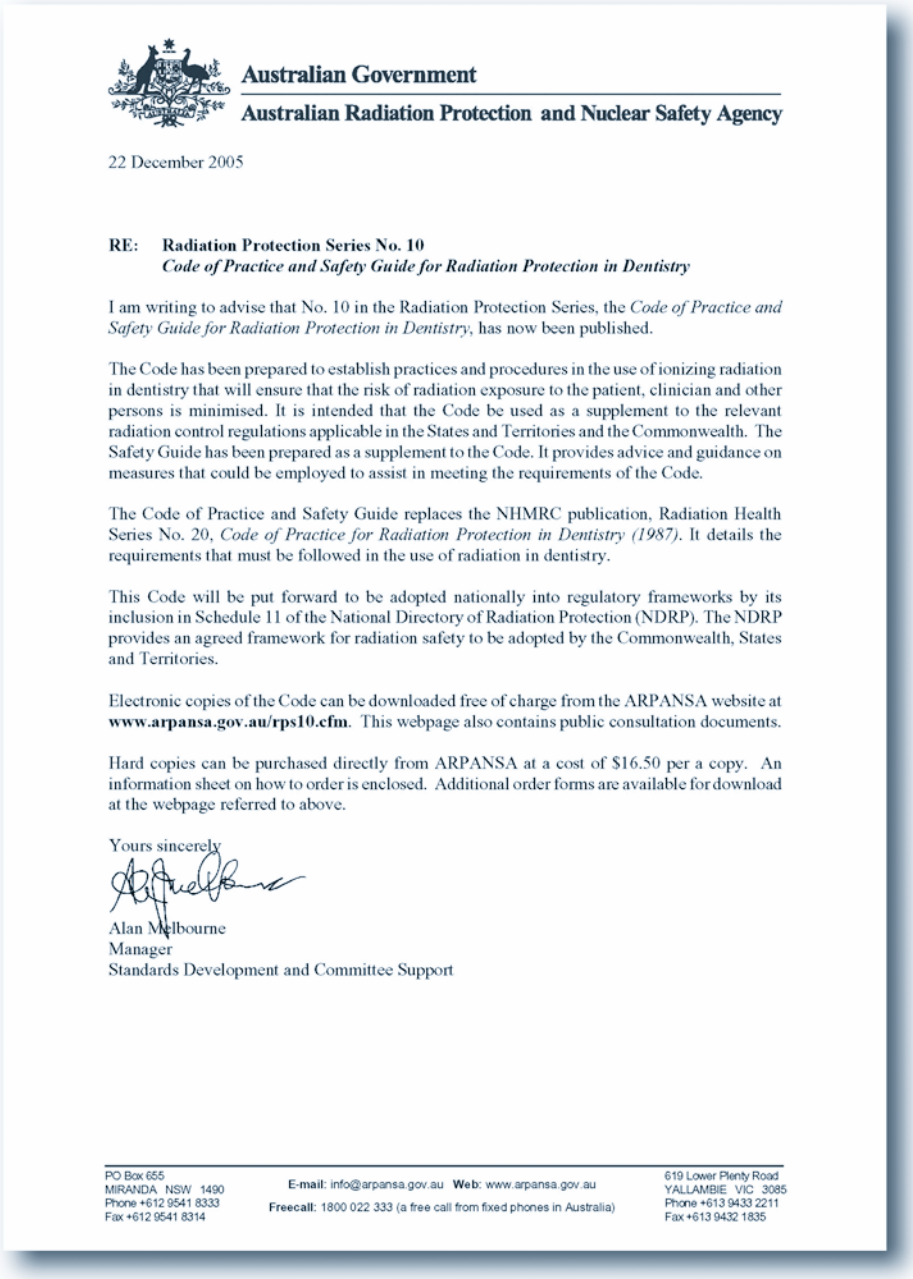
- 17 publications in peer review literature (six international journals)
- RACDS Young Lecturer of the Year 2000
- presentations at national and international meetings
- commissioned report to the Ministry of Health entitled *Development of a comprehensive public health approach to improving child oral health and reducing child oral health inequalities*, 2004
- submissions and reports to Ministry of Health on behalf of the NZDA on *Healthy Eating* and *Fight the Obesity Epidemic*
- reviewer for four journals including the NZDJ
- examiner for masters examinations in dental public health, oral and maxillofacial surgery and paediatric dentistry
- examiner in PhD examinations, dental public health
- chairperson of the Hospital and Community Dentistry Conference in Dunedin, 2002
- winner of Supreme Ground Royal Arch Chapter of NZ Freemasons Travel Scholarship, 2002
- winner of the Sir Thomas Hunter Scholarship in Dentistry, 1999
- winner of the Allan Coster Trophy, 1996
- winner IADR Post-Graduate Colgate Poster Competition, 2000
- recipient of several NZDA Research Foundation grants
- senior lecturer, teaching at both under & post-grad level

Katie is currently:

- coordinator of the NZDA recent graduate development programme in Waikato
- fluoridation spokesperson (Waikato)
- executive member Waikato-BOP Branch of NZDA
- executive member of ANZSPD
- member of Waikato DHB Oral Health Advisory Group

Katie is also in part-time specialist practice and has two young children. She is married to Angus Colquhoun, who is currently undertaking the oral maxillofacial advanced surgical training programme.

reprinted from NZDA News November 2005



Australian Government
Australian Radiation Protection and Nuclear Safety Agency

22 December 2005

RE: Radiation Protection Series No. 10
Code of Practice and Safety Guide for Radiation Protection in Dentistry

I am writing to advise that No. 10 in the Radiation Protection Series, the *Code of Practice and Safety Guide for Radiation Protection in Dentistry*, has now been published.

The Code has been prepared to establish practices and procedures in the use of ionizing radiation in dentistry that will ensure that the risk of radiation exposure to the patient, clinician and other persons is minimised. It is intended that the Code be used as a supplement to the relevant radiation control regulations applicable in the States and Territories and the Commonwealth. The Safety Guide has been prepared as a supplement to the Code. It provides advice and guidance on measures that could be employed to assist in meeting the requirements of the Code.

The Code of Practice and Safety Guide replaces the NHMRC publication, Radiation Health Series No. 20, *Code of Practice for Radiation Protection in Dentistry (1987)*. It details the requirements that must be followed in the use of radiation in dentistry.

This Code will be put forward to be adopted nationally into regulatory frameworks by its inclusion in Schedule 11 of the National Directory of Radiation Protection (NDRP). The NDRP provides an agreed framework for radiation safety to be adopted by the Commonwealth, States and Territories.

Electronic copies of the Code can be downloaded free of charge from the ARPANSA website at **www.arpansa.gov.au/rps10.cfm**. This webpage also contains public consultation documents.

Hard copies can be purchased directly from ARPANSA at a cost of $16.50 per a copy. An information sheet on how to order is enclosed. Additional order forms are available for download at the webpage referred to above.

Yours sincerely

Alan Melbourne
Manager
Standards Development and Committee Support

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ANZSPD (Victoria) Paediatric Oral Health Small Grants

Applications are invited from interested individuals, groups, institutions or organisations for funding for small projects or items of equipment that will promote the oral health of children.

Requests in writing should be made to the President, ANZSPD (Vic Branch) for funding of between $500 and $5000. The application should be no longer than one page including a clear aim, expected outcomes and how they meet the objectives of ANZSPD (Vic Branch) which are:

1. to study and promote the improved dental health of children;
2. to bring together individuals and entities from the various disciplines associated with paediatric dentistry for the purpose of furthering the objective above;
3. to provide opportunity for discussion of clinical methods and research based on the team approach; and
4. to do any other act or thing, ancillary or conducive to, and not inconsistent with the above.

Applications should be sent in hard copy to: Dr Jodie Heap, Secretary ANZSPD (Vic Branch), PO Box 390, Clifton Hill 3068.

Applications will be considered by the ANZSPD (Vic Branch) whose decision will be final and no correspondence will be entered in to regarding the outcome of applications.

Successful applicants will be expected to provide a report on the outcomes of their application for publication in Synopses.

Closing date for applications: Friday, 21 April 2006

Announcement of successful applicants: ANZSPD evening meeting on 11 May 2006.

Colgate® Corner

by Jackie Robinson
Colgate Professional Relations Manager

Here we are already into the third month of 2006! I hope all members of ANZSPD have experienced a good start to the year.

IAPD, Sydney 2005

Although it was four months ago, the wonderful memories of the highly successful IAPD Congress in Sydney linger with us all. Congratulations to the entire organising committee on making every aspect of the Congress memorable not only for our overseas guests, but also for all of us in Australia who were fortunate enough to be part of the Congress.

As always, Dr Rabbit has been hard at work preparing the Colgate Bright Smiles Bright Futures program for the year. In 2006 we are continuing to provide BSBF oral care education kits for both Year 3 classrooms and for preschools. Visit the Colgate website – www.colgateprofessional.com.au – for more information about the 2006 BSBF program and to request kits online. Or you can ring the BSBF Call Centre for Australia on 1800 075 685.

Bright Smiles Mission

In 2005 Colgate trialed a Bright Smiles Mission healthy fund raiser in selected schools in New South Wales. The pilot program – offering toothbrush / toothpaste packs - was well received by schools. A second stage pilot in selected schools in other states will be conducted in the first half of 2006. Colgate will roll out the program nationally during the second half of 2006. For more information or to register a school's interest in participating, ring Natalie Roberts on 03 9824 1710.

New Colgate Product Catalogue

New Colgate oral care product catalogues will be distributed in Australia in March/April. Catalogues for New Zealand will be finalized later in the year. The catalogue gives dental professionals an overview of Colgate's current product range and outlines relevant product and ordering information. To request additional copies of the catalogue, contact your local Colgate Territory/Sales Manager or ring Colgate Oral Care on 1800 262 111 (in Australia).

It has been a great pleasure working with the ANZSPD during my time with Colgate. I wish all members all the best in the coming years.

Jackie Robinson

Changes within Colgate Professional Relations

After six years as Colgate Professional Relations Manager for Australia, Dr Jackie Robinson is departing Colgate in early March. Many of you will be aware of the wonderful contribution that Jackie has made in this position. She has always been a great supporter of dental therapists and the role that we play as part of the dental team. She will be greatly missed and we wish her all of the best in the future.

I will advise you about the new Professional Relations Manager in the next edition of the newsletter. At this time I am pleased to advise that Dr Sarah Raphael will re-join the Professional Relations team in a special role coordinating educational programs. Until Jackie's replacement is on board, please contact me for all sponsorships and special projects. Contact your local Territory/Sales Manager for information about products and sales.

Lenore Tuckerman

The Colgate® Sales Team

New South Wales

Nolene Devery Sales Manager for NSW/Qld	0419 998 515
Tanya Brown	0410 488 581
Louise McAllister	0419 993 700

Australilan Capital Territory

Deborah Goodwin	0419 268 549

Queensland

Hilary Berry	0417 642 665
Felicity Dougherty	0409 159 417

South Australia

Jodie Cerchez	0400 387 249

Tasmania

Janine Vincent Sales Manager for Vic/Tas/SA	0417 592 499

Victoria

Catherine Byriell	0417 598 170

WA/NT

Karin Guder, Sales Manager for WA/NT	0417 400 027

New Zealand

Kim Austin, Sales Manager for New Zealand	027 275 2298
Glenda McKenzie	027 537 2992
Sarah Blakey	027 245 8190

In Australia, orders for Colgate products are placed through Halas Dental:

Phone: 1300 658822 Fax: 1300 658810

In New Zealand, orders for Colgate products are placed through Shalfoon Dental:

Phone: 0800 808 855 Fax: (09) 3781 158

The Colgate team of Territory Managers is here to assist you with the products you need in your surgeries.

Contact details for Lenore Tuckerman, Professional Relations Consultant:
(Tuesdays, Thursdays, Fridays)
lenore_tuckerman@colpal.com
Office: (02) 9229 5798
Mobile: 0403 805 964

Coming events

24-25 March 2006
Mediterranean Congress
of Paediatric Dentistry
'Paediatric dentistry at 21st century; reality and prospects'
Palais des Congres, Marrakech, Morocco
Congress secretary: Dr Tarik Rahmani
Address: 13 rue ait ourir, 1er étage, appt 2, bourgogne, Casablanca, Maroc.
tel: (+212 22 27 99 80) (+212 61 42 43 22)
fax: (+212 22 39 34 92)
email: tarik_rahmani@yahoo.fr or tarikop@wanadoo.ma

25-29 May 2006
59th AAPD Annual Session
Omni Hyatt and Westin Cincinnati, Ohio, USA

8-11 June 2006
8th EAPD Congress
Amsterdam, The Netherlands www.eapd,gr

23-24 June 2006
5th PDAA Conference
Splendor Hotel
Kaohsiung, Taiwan
http://www.pdaa2006.com

23-27 May 2007
ANZSPD Federal Convention
Cable Beach Club Resort, Broome, WA

24-28 May 2007
60th AAPD Annual Session
Henry B. Gonzalez Convention Center
San Antonio, Texas, USA

14-17 June 2007
21st IAPD International Congress
Hong Kong Convention and Exhibition Centre
http://www.iapd2007.com/

8-13 June 2009
22nd IAPD International Congress
International Congress Centre, Munich, Germany

STOP PRESS

Congratulations

Our congratulations to Sam Gue, Karen Kan and John Sheahan on being the first to pass the Royal Australasian College of Dental Surgeons' Special Stream exams in Paediatric Dentistry. This is quite an achievement and I hope it encourages more of our members to sit the exams.

Dr J Lucas, President, Australasian Academy of Paediatric Dentistry

Dr John Winters, Federal President, Australian and New Zealand Society of Paediatric Dentistry

Austalian and New Zealand Society of Paediatric Dentistry

www.anzspd.org.au

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Mailing List

The mailing list for the distribution of Synopses is maintained by Dr John Winters on behalf of the Federal Secretary/Manager of ANZSPD. It is compiled from information supplied by the Branch Secretaries. If there are errors in your mailing details, please contact Dr John Winters or your Branch Secretary. DO NOT contact Colgate for address correction.

Submissions

All text for inclusion in Synopses must be submitted to the editor on floppy disk, zip disk, CD, or by email. Both PC and Mac formats are accepted. Media will not be returned. Address email to karenkan@optusnet.com.au. Please enclose your contact details and email address with all submissions.

Deadline next issue 19 May 2006